

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of)
the County of San Diego for Review)
of Inaction of the San Diego Regional)
Water Quality Control Board, Regarding)
Implementation of Water Reclamation)
Goals. Our File No. A-231(a).)

Order No. WQ 81-11

BY THE BOARD:

On April 20, 1978, this Board adopted Resolution No. 78-15, which approved amendments to the Water Quality Control Plan, San Diego Basin, and which requested the Regional Water Quality Control Board, San Diego Region (Regional Board), to take certain actions regarding review of water quality objectives relating to wastewater reclamation in the San Diego Basin. On April 20, 1979, the State Board received a petition from the County of San Diego for review of the Regional Board's alleged failure to implement State Board Resolution No. 78-15.

On April 3, 1980, this Board adopted Order No. WQ 80-7 in response to the County's petition. However, Order No. 80-7 stated that the alleged failure by the Regional Board to review certain numerical water quality objectives for nitrogen and phosphorus would not be addressed in Order No. 80-7 but would be the subject of a separate Board order. We took this action as the record contained little, if any, evidence on the nitrogen and phosphorus issue. This order addresses the nutrient objective issue.

The Regional Board filed comments on this issue on September 8, 1980 and January 16, 1981 and the County filed comments on January 13, February 4, March 10, and June 3, 1981.

BACKGROUND

In June 1971, the Regional Board adopted the Interim Water Quality Control Plan for the San Diego Basin. The Interim Plan contained a prohibition of discharge of all sewage or industrial wastewater, treated or untreated, to surface waters in the Basin. Consequently, several grant offers were made to eliminate remaining surface water discharges.

When the final Water Quality Control Plan was adopted in 1975, the prohibition was eliminated in favor of water quality objectives for surface waters which would protect beneficial uses and prevent the creation of pollution or nuisance. Narrative objectives for phosphorus and nitrogen were proposed by the Regional Board and modified at the request of this Board and EPA to also include numerical objectives. Consequently, the Basin Plan now contains both narrative and numerical standards for nitrogen and phosphorus in Chapter 4, page 9, as follows:

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses.

Threshold total phosphorus (P) concentrations shall not exceed 0.05 mg/l in any stream at the point where it enters any reservoir or lake, nor 0.025 mg/l in any reservoir or lake. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/l total P. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water

quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N:P = 10:1 shall be used.

The numerical limits in the Basin Plan for phosphorus are based upon previous State Board and EPA guidance. Numerical limits for nitrogen are based upon the Basin Plan contractors literature review of the nitrogen to phosphorus ratio in plant uptake of mineral constituents. The Regional Board comments in this matter further note a history of surface water problems and Regional Board actions taken to correct those problems prior to adoption of the numerical limits.

When this Board adopted Resolution No. 78-15, we noted that comments had been submitted from several local San Diego area agencies requesting review of the numerical objectives for nitrogen and phosphorus and we found as follows:

10. The basin plan numerical water quality objectives for nitrogen and phosphorus for surface waters, particularly for coastal lagoons, are based on literature guidelines which may be invalid for surface waters in the San Diego Region and, therefore, inappropriately preclude consideration of use of reclaimed wastewater for coastal lagoon restoration and replenishment;

Resolution No. 78-15 went on to request the Regional Board to:

- 3(e). Review numerical water quality objectives for nitrogen and phosphorus for surface waters, particularly for coastal lagoons where potential for replenishment with reclaimed water has been identified. Where existing numerical objectives are based on literature guidelines (e.g., basin planning Management Memorandum No. 20 "Water Quality Objectives"), such objectives should be reviewed for validity as applied to specific water bodies and, where reasonable and appropriate, eliminated in favor of narrative objectives.

On July 25, 1978, the Regional Board submitted a status report on compliance with Resolution No. 78-15 and reported with respect to paragraph 3e that:

"A draft work plan element has been prepared for the continuing planning process that would provide for development of information to be used in a review of numerical water quality objectives for nitrogen and phosphorus for surface waters. Completion of this work will be dependent on allocated resources."

The draft work plan was submitted and a revised draft was submitted to this Board on November 1, 1978. In April 1979, further negotiations were conducted on work plan elements. As no grant funding was made available to implement the draft plan, the plan did not proceed.

Finally, it should be noted, that by letter dated March 10, 1981, the County again formally requested the Regional Board to modify numerical limits for nitrogen and phosphorus specifically in the San Elijo Lagoon. The County included several attachments regarding nitrogen and phosphorus and stated that "County staff is looking forward to working with the Regional Board staff in development of information that could lead to an amendment of Basin Plan Standards...." While it is not known whether such cooperative development of information is proceeding, we note that on March 23, 1981, the Regional Board adopted Resolution No. 81-16 amending the Basin Plan standards for TDS, sodium, chlorides, nitrates and other constituents. The Regional Board staff summary states that no change is recommended for nutrient and phosphorus numerical limits as no specific data has been presented to justify a change. This inaction will be discussed, infra.

The history and progress of wastewater reclamation in the San Diego Basin is extensive. However, we discussed this topic in Order No. 80-7 and will not repeat the discussion in this order.

CONTENTIONS AND FINDINGS

The County contends that the Regional Board has failed to implement paragraph 3(e) of State Board Resolution No. 78-15 in that they have not reviewed numerical water quality objectives for nitrogen and phosphorus. The County specifically requests that the numerical objective for phosphorus be modified to allow a range of 0.1 to 1.0 mg/l dependent on conditions and management goals for the receiving water in question.

The County and the Regional Board agree that the review anticipated by this Board as requested in paragraph 3(e) has not occurred. The action taken by the Regional Board on March 23, 1981, to amend the Basin Plan does not thoroughly consider and evaluate the nitrogen and phosphorus issue. We recognize that draft work plans have been negotiated to study this issue. However, the Regional Board has not proceeded to review these numerical objectives, in part because this Board and EPA did not allocate resources to undertake the studies. Nevertheless, we believe that further action must be taken to reconsider these nutrient objectives.

In Resolution No. 78-15, we found that the numerical objectives for nitrogen and phosphorus are based on literature guidelines which may be invalid for surface waters in the San Diego

Region. The numerical values for phosphorus contained in the Basin Plan appear to be based on EPA's "Phosphorus Water Quality Guidelines for Developing or Revising Water Quality Standards", contained in the supplement to the Management Memorandum No. 20 received from EPA on April 6, 1973 and EPA's Quality Criteria for Water (Red Book), July 19, 1976. EPA's criteria and guidelines of April 6, 1973 are based on recommendations of the National Technical Advisory Committee and results of the National Eutrophication Survey which studied 242 lakes and reservoirs. However, these lakes and reservoirs have different conditions than the saline coastal lagoons with tidal action in San Diego. Therefore, it could be concluded that results from such studies which were conducted under different conditions may not be applicable to the situation in the San Diego Region. In this regard, it should also be noted that the time period that has ensued since these studies were completed indicates that additional analysis is needed. We also note the data submitted by the County which bears on the issue of the continued validity of the existing objectives.

The EPA Guidelines are target standards and are not rigid legal requirements. Water quality based exceptions can be granted. This is to some extent recognized in the Basin Plan. The EPA Red Book discusses another method to control nutrients, that of prescribing an annual loading to the receiving water. The Red Book cites other factors that relate to the control of

eutrophication in water bodies, but stops short of presenting a criterion for phosphorus for the control of eutrophication.

The Regional Board in their response to the petition cite enforcement actions taken in the 1960s against the City of Escondido and two County Sanitation Districts, Cardiff and Solana Beach, as evidence of pollution and nuisance problems in coastal lagoons. They further cite limited sampling in the San Elijo Lagoon showing phosphorus in excess of the basin plan goal of 0.1 mg/l. We do not know, however, whether such problems were caused by excess phosphorus or nitrogen discharges from these communities or whether the San Elijo Lagoon phosphorus levels imply pollution problems if reclaimed water is used for Lagoon replenishment. We note in this regard the County's contention that the major source of nutrient loading to the Lagoon is from non-point sources.

The County, in their comments, cite certain evidence in support of their contention that current numerical limits should be relaxed: A memorandum from the Department of Fish and Game to the Regional Board, dated November 17, 1980, indicating support for a proposed project in the San Elijo Lagoon area with relaxed nutrient limits; documents contending that beneficial uses can be enhanced with less stringent phosphorus limits; documents indicating that phosphorus levels and pollution problems are closely related to non-point and natural sources; recent County efforts to control vegetation growth and other nuisance problems; and information on other Regional Boards' approval of more relaxed nutrient objectives.

After reviewing the issues and facts cited above, we conclude that a reexamination of the nutrient objectives must take place. In Order No. WQ 80-7, we discussed the urgent need for encouraging reclamation in the San Diego Region. Reclamation should be considered as an exception to the Basin Plan nutrient objectives where lagoon replenishment can be accomplished without creating pollution or nuisance problems. We must add a word of caution to the proponents of reclamation projects. Reclamation is not to be equated to waste disposal. The Water Code defines "reclaimed water" to mean water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur (Water Code Section 13050(n)). Exceptions to the nutrient objectives should be applied only to true reclamation projects.

By letter dated June 3, 1981, the County furnished additional comments on this matter. The County proposed that a real operational scale demonstration of the effects of reclaimed water with less stringent objectives be provided. The project would be a two-year demonstration of reclaimed water use for wildlife enhancement purposes at San Elijo Lagoon. At the end of the two-year period, the County stated it will take whatever action is necessary to provide reclaimed water of a quality necessary to protect the lagoon.

We feel that the County's proposal has merit. The proposal would solve, in part, the funding difficulties that have prevented the generation of data necessary to review of

nutrient standards. We therefore direct the Regional Board to issue a discharge permit for the project as an exception to the existing nutrient objectives, provided the following actions take place:

1. The County submits a detailed description of the project to the Regional Board.

2. The County submittal commits the County to meet the measures outlined in its June 3, 1981 letter. These include nutrient limits, a maximum flow limit, a nuisance management plan, and a monitoring plan.

Any discharge permit issued for the project should contain conditions to ensure that these commitments are fulfilled and that clearly indicate the interim nature of the discharge.

It should be made clear that this project is considered a two-year pilot project. Data developed from the project will be evaluated by the Regional Board to see if the discharge should be continued. It is also hoped that the project will assist in determining the more general question of whether numerical nutrient objectives are appropriate.

We noted earlier that on March 23, 1981, the Regional Board amended its Basin Plan but declined to change the numerical nutrient standards until further data is presented. We feel such action may have a chilling effect on the development of pilot reclamation projects that could provide the needed data. Therefore, we are requesting the Regional Board to change the Basin Plan to allow exceptions to the existing numerical objectives

for pilot reclamation projects on a basis similar to that contained in the EPA Guidelines. This step will allow other projects which are similar to that proposed at San Elijo Lagoon to proceed. It should be made clear that this exception criteria should be interim in nature until the more general question of the numerical objectives can be reexamined. It should also be made clear that the exceptions are to be limited to pilot projects that truly involve reclamation.

We feel that such action is warranted based on the emphasis the legislature has placed on reclamation:

1. The California Constitution requires that the State shall put to beneficial use the water resources to its fullest extent possible.

2. Water Code Section 13512 provides that the State shall undertake all possible steps to encourage water reclamation.

3. Pursuant to Water Code Section 13240, Basin Plans must conform with the policy of conserving and maximizing use of the water resources of the State and with the Policy and Action Plan For Water Reclamation In California adopted by the State Board in 1977.

4. Water Code Section 13241 states that water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area must be considered in establishing water quality objectives.

5. A high percentage of the water used in the San Diego Basin is imported from outside the Basin.

As a further step, we are also directing the Regional Board to determine what additional data is needed for it to reconsider the existing nutrient objectives and how this data can be generated.

CONCLUSION AND ORDER

We conclude that the Regional Board has not complied with our request in paragraph 3(e) of Resolution No. 78-15. In view of the need to proceed with review of the numerical limits for phosphorus and nitrogen, it is **HEREBY ORDERED** that the Regional Board and the County shall take action as follows:

1. The County should submit to the Regional Board a detailed discussion of the demonstration project outlined in its June 3, 1981 letter. This submittal shall include a report of proposed waste discharge and an explanation as to why an exemption from the Basin Plan nutrient objectives is appropriate.
2. The Regional Board shall issue waste discharge requirements for the two-year demonstration project, as outlined above.
3. The Regional Board shall amend the Basin Plan as outlined, supra.

4. Within three months of the date of the Order, the Regional Board, in cooperation with the County, shall provide the State Board with a memorandum explaining what information it feels is necessary, in addition to the data that will be generated from the demonstration project, in order for it to reconsider the numerical nutrient objectives. This memorandum should summarize the existing data relative to this issue.

DATED: July 16, 1981

/s/ Carla M. Bard
Carla M. Bard, Chairwoman

/s/ L. L. Mitchell
L. L. Mitchell, Vice-Chairman

/s/ Jill B. Dunlap
Jill B. Dunlap, Member

/s/ F. K. Aljibury
F. K. Aljibury, Member